

Proposal Number 435

Safety Interlock Software Simulator was 189 and 190

Safety Interlocks Group

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*Argonne National Laboratory is managed by
The University of Chicago for the U.S. Department of Energy*

Project: (ASD 435) Safety Interlock Software Simulator was 189 and 190

Objective: Simulate and test software prior to implementation, for the Personnel Safety System (PSS), Beamline Line Equipment Protection System (BLEPS) and Front End Equipment Protection System (FEEPS) systems, in addition test EPICS interface.

Background Information:

- New Initiative
- Single Year Funding
- Medium priority

Justification:

- Decreases PSS, BLEPS and FEEPS validation and verification time.
- Testing software prior to on floor implementation.
- Tests scenarios and anomaly in the lab without acquiring experimental floor's time.
- Could be used to implement automated software testing to achieve 100% coverage.
- Enables consistency and test reliability with minimal human interface.

Consequence:

- DOE mandates we restart a validation from the beginning, if there is a modification to the software.
- Discovering software bugs during validations could double validations.
- With more beamlines coming online, time and manpower are major constraints.
- We are not testing 100% of the scenarios
- Susceptible to human errors.

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Requested Funds (FY06): \$117.75 K (Equip)

FY	2006	2007	2008	Total
Noneffort	\$67.75 K	\$30 K	\$20 K	\$117.75 K
Existing Effort				
New Effort				
Total	\$67.75 K	\$30 K	\$20 K	\$117.75 K

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Description:

- Programmable Industrial Control Simulation (PICS) software package (x2).
- Allen Bradley PLC rack(x3),
- CPU (x3),
- Enet (x3),
- Cnet (x3),
- Profibus (x3)
- ControlLogix 5000 (x3)
- Panel view plus (x3)
- PC monitor (x4)
- Work stations (x4)
- PICS and Panel view plus training